

| Ref # | Hits | Search Query   | DBs   | Default Operator | Plurals | Time Stamp       |
|-------|------|--|---|------------------|---------|------------------|
| L1    | 0    | ("pHwithfibrinwithglue").PN.   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | OFF     | 2005/04/21 17:09 |
| L2    | 14   | ph with fibrin with glue   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2005/04/21 17:16 |
| L3    | 2    | acidic near3 fibrin near3 glue   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2005/04/21 17:17 |
| L4    | 364  | (ph or acidic) with fibronectin  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2005/04/21 17:18 |
| L5    | 273  | (ph) with fibronectin  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2005/04/21 17:32 |
| L6    | 0    | eptfe with (acid or acidic) with slurry  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2005/04/21 17:32 |
| L7    | 0    | eptfe same (acid or acidic) with slurry  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2005/04/21 17:33 |
| L8    | 2    | eptfe and (acid or acidic) with slurry   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2005/04/21 17:34 |
| L9    | 0    | (expanded near3 PTFE or expanded near3 polytetrafluoroethys) with (acid or acidic) with slurry | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2005/04/21 17:35 |

|     |    |   |   |    |    |                  |
|-----|----|---|---|----|----|------------------|
| L10 | 0  | (expanded near3 PTFE or expanded near3 polytetrafluoroethy\$) same (acid or acidic) with slurry | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR | ON | 2005/04/21 17:35 |
| L11 | 10 | (expanded near3 PTFE or expanded near3 polytetrafluoroethy\$) and (acid or acidic) with slurry  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR | ON | 2005/04/21 17:37 |
| L12 | 73 | (expanded near3 PTFE or expanded near3 polytetrafluoroethy\$) with (acid or acidic)             | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR | ON | 2005/04/21 17:37 |

|    | Document ID       | Kind Code | Source | Term Pat | Pages | Image |
|----|-------------------|-----------|--------|----------|-------|-------|
| 1  | GB 2074093 A      |           | DERWEN | 19811028 |       |       |
| 2  | DE 3623893 A      | A1, C2    | DERWEN | 19870129 | 6     | DE 3  |
| 3  | EP 295777 A       | A1, B1    | DERWEN | 19881221 | 6     | EP 2  |
| 4  | US 4875908 A      |           | USPAT  | 19891024 | 4     | US 4  |
| 5  | US 4902308 A      |           | USPAT  | 19900220 | 7     | US 4  |
| 6  | US 4954238 A      |           | USPAT  | 19900904 | 7     | US 4  |
| 7  | US 5019096 A      |           | USPAT  | 19910528 | 23    | US 5  |
| 8  | US 5028597 A      |           | USPAT  | 19910702 | 7     | US 5  |
| 9  | US 5082472 A      |           | USPAT  | 19920121 | 14    | US 5  |
| 10 | US 5547551 A      |           | USPAT  | 19960820 | 16    | US 5  |
| 11 | US 5616338 A      |           | USPAT  | 19970401 | 21    | US 5  |
| 12 | US 5681624 A      |           | USPAT  | 19971028 | 9     | US 5  |
| 13 | US 5874165 A      |           | USPAT  | 19990223 | 25    | US 5  |
| 14 | US 5897955 A      |           | USPAT  | 19990427 | 24    | US 5  |
| 15 | US 5900292 A      |           | USPAT  | 19990504 | 8     | US 5  |
| 16 | US 5902745 A      |           | USPAT  | 19990511 | 17    | US 5  |
| 17 | US 5914182 A      |           | USPAT  | 19990622 | 25    | US 5  |
| 18 | US 6019788 A      |           | USPAT  | 20000201 | 31    | US 6  |
| 19 | US 6042605 A      |           | USPAT  | 20000328 | 32    | US 6  |
| 20 | US 6059943 A      |           | USPAT  | 20000509 | 15    | US 6  |
| 21 | US 6199979 B1     |           | USPAT  | 20010313 | 14    | US 6  |
| 22 | US 6254978 B1     |           | USPAT  | 20010703 | 12    | US 6  |
| 23 | US RE37307 E      |           | USPAT  | 20010807 | 18    | US R  |
| 24 | US 6287717 B1     |           | USPAT  | 20010911 | 32    | US 6  |
| 25 | US 6300000 B1     |           | USPAT  | 20011009 | 82    | US 6  |
| 26 | US 20010033960 A1 |           | US-PGP | 20011025 | 93    | US 2  |
| 27 | US 20010044413 A1 |           | US-PGP | 20011122 |       |       |
| 28 | US 20010049550 A1 |           | US-PGP | 20011206 |       |       |
| 29 | US 20020002397 A1 |           | US-PGP | 20020103 |       |       |
| 30 | US 20020011684 A1 |           | US-PGP | 20020131 |       |       |
| 31 | US 20020022588 A1 |           | US-PGP | 20020221 |       |       |
| 32 | US 20020022123 A1 |           | US-PGP | 20020221 |       |       |
| 33 | US 20020035394 A1 |           | US-PGP | 20020321 |       |       |
| 34 | US 6361637 B1     |           | USPAT  | 20020326 |       |       |
| 35 | US 20020055697 A1 |           | US-PGP | 20020509 |       |       |
| 36 | US RE37701 E      |           | USPAT  | 20020514 |       |       |
| 37 | US 6395383 B1     |           | USPAT  | 20020528 |       |       |
| 38 | US 6416776 B1     |           | USPAT  | 20020709 |       |       |
| 39 | US 20020095218 A1 |           | US-PGP | 20020718 |       |       |
| 40 | US 20020142459 A1 |           | US-PGP | 20021003 |       |       |
| 41 | US 20020142458 A1 |           | US-PGP | 20021003 |       |       |
| 42 | US 20020141979 A1 |           | US-PGP | 20021003 |       |       |
| 43 | US 20020155295 A1 |           | US-PGP | 20021024 |       |       |

US-PAT-NO: 5681624

DOCUMENT-IDENTIFIER: US 5681624 A

TITLE: Liquid crystal polymer film and a method for manufacturing the same

----- KWIC -----

Detailed Description Text - D8TX (9):

A concentrated sulfuric acid solution containing 15% poly(p-phenylene terephthalamide) (PPTA) was cast on the surface of the porous expanded polytetrafluoroethylene membrane and allowed to impregnate into the membrane. Casting equipment having a static mixer-stirrer at its die inlet was used. While still on the casting belt, the impregnated expanded polytetrafluoroethylene membrane was immersed in an aqueous solution of sulfuric acid (25%) to coagulate the PPTA. The impregnated membrane was then removed from the belt and rinsed in water. These steps were repeated four times until the pores of the porous expanded polytetrafluoroethylene membrane, to depth of about 55% of the thickness of the membrane, were filled with PPTA.

|    | Document ID       | Kind Code | Source | Issue-Date | Pages | Image |
|----|-------------------|-----------|--------|------------|-------|-------|
| 1  | GB 2074093 A      |           | DERWEN | 19811028   |       |       |
| 2  | DE 3623893 A      | A1, C2    | DERWEN | 19870129   | 6     | DE 3  |
| 3  | EP 295777 A       | A1, B1    | DERWEN | 19881221   | 6     | EP 2  |
| 4  | US 4875908 A      |           | USPAT  | 19891024   | 4     | US 4  |
| 5  | US 4902308 A      |           | USPAT  | 19900220   | 7     | US 4  |
| 6  | US 4954238 A      |           | USPAT  | 19900904   | 7     | US 4  |
| 7  | US 5019096 A      |           | USPAT  | 19910528   | 23    | US 5  |
| 8  | US 5028597 A      |           | USPAT  | 19910702   | 7     | US 5  |
| 9  | US 5082472 A      |           | USPAT  | 19920121   | 14    | US 5  |
| 10 | US 5547551 A      |           | USPAT  | 19960820   | 16    | US 5  |
| 11 | US 5616338 A      |           | USPAT  | 19970401   | 21    | US 5  |
| 12 | US 5681624 A      |           | USPAT  | 19971028   | 8     | US 5  |
| 13 | US 5874165 A      |           | USPAT  | 19990223   | 25    | US 5  |
| 14 | US 5897955 A      |           | USPAT  | 19990427   | 24    | US 5  |
| 15 | US 5900292 A      |           | USPAT  | 19990504   | 8     | US 5  |
| 16 | US 5902745 A      |           | USPAT  | 19990511   | 17    | US 5  |
| 17 | US 5914182 A      |           | USPAT  | 19990622   | 25    | US 5  |
| 18 | US 6019788 A      |           | USPAT  | 20000201   | 31    | US 6  |
| 19 | US 6042605 A      |           | USPAT  | 20000328   | 32    | US 6  |
| 20 | US 6059943 A      |           | USPAT  | 20000509   | 15    | US 6  |
| 21 | US 6199979 B1     |           | USPAT  | 20010313   | 14    | US 6  |
| 22 | US 6254978 B1     |           | USPAT  | 20010703   | 12    | US 6  |
| 23 | US RE37307 E      |           | USPAT  | 20010807   | 18    | US R  |
| 24 | US 6287717 B1     |           | USPAT  | 20010911   | 32    | US 6  |
| 25 | US 6300000 B1     |           | USPAT  | 20011009   | 82    | US 6  |
| 26 | US 20010033960 A1 |           | US-PGP | 20011025   | 83    | US 2  |
| 27 | US 20010044413 A1 |           | US-PGP | 20011122   |       |       |
| 28 | US 20010049550 A1 |           | US-PGP | 20011206   |       |       |
| 29 | US 20020002397 A1 |           | US-PGP | 20020103   |       |       |
| 30 | US 20020011684 A1 |           | US-PGP | 20020131   |       |       |
| 31 | US 20020022588 A1 |           | US-PGP | 20020221   |       |       |
| 32 | US 20020022123 A1 |           | US-PGP | 20020221   |       |       |
| 33 | US 20020035394 A1 |           | US-PGP | 20020321   |       |       |
| 34 | US 6361637 B1     |           | USPAT  | 20020326   |       |       |
| 35 | US 20020055697 A1 |           | US-PGP | 20020509   |       |       |
| 36 | US RE37701 E      |           | USPAT  | 20020514   |       |       |
| 37 | US 6395383 B1     |           | USPAT  | 20020528   |       |       |
| 38 | US 6416776 B1     |           | USPAT  | 20020709   |       |       |
| 39 | US 20020095218 A1 |           | US-PGP | 20020718   |       |       |
| 40 | US 20020142459 A1 |           | US-PGP | 20021003   |       |       |
| 41 | US 20020142458 A1 |           | US-PGP | 20021003   |       |       |
| 42 | US 20020141979 A1 |           | US-PGP | 20021003   |       |       |
| 43 | US 20020155295 A1 |           | US-PGP | 20021024   |       |       |

US-PAT-NO: 4875908

DOCUMENT-IDENTIFIER: US 4875908 A

TITLE: Process for selectively separating gaseous mixtures containing water vapor

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Detailed Description Text - DETX (19):

The same porous, expanded polytetrafluoroethylene membrane used in Example 1 was impregnated with a 9% ethanol solution of the fluororesin copolymer containing sulfonic acid groups used in Example 1. The impregnated membrane was allowed to stand for 24 hours at 40.degree. C., and was then further dried for 180 minutes at 120.degree. C. to produce a membrane selectively permeable to water vapor.

|    | Document ID       | Kind Code | Source | Issue Ref | Pages | Image |
|----|-------------------|-----------|--------|-----------|-------|-------|
| 1  | GB 2074093 A      |           | DERWEN | 19811028  |       |       |
| 2  | DE 3623893 A      | A1, C2    | DERWEN | 19870129  | 6     | DE 3  |
| 3  | EP 295777 A       | A1, B1    | DERWEN | 19881221  | 6     | EP 2  |
| 4  | US 4875908 A      |           | USPAT  | 19891024  | 4     | US 4  |
| 5  | US 4902308 A      |           | USPAT  | 19900220  | 7     | US 4  |
| 6  | US 4954238 A      |           | USPAT  | 19900904  | 7     | US 4  |
| 7  | US 5019096 A      |           | USPAT  | 19910528  | 23    | US 5  |
| 8  | US 5028597 A      |           | USPAT  | 19910702  | 7     | US 5  |
| 9  | US 5082472 A      |           | USPAT  | 19920121  | 14    | US 5  |
| 10 | US 5547551 A      |           | USPAT  | 19960820  | 16    | US 5  |
| 11 | US 5616338 A      |           | USPAT  | 19970401  | 21    | US 5  |
| 12 | US 5681624 A      |           | USPAT  | 19971028  | 8     | US 5  |
| 13 | US 5874165 A      |           | USPAT  | 19990223  | 25    | US 5  |
| 14 | US 5897955 A      |           | USPAT  | 19990427  | 24    | US 5  |
| 15 | US 5900292 A      |           | USPAT  | 19990504  | 8     | US 5  |
| 16 | US 5902745 A      |           | USPAT  | 19990511  | 17    | US 5  |
| 17 | US 5914182 A      |           | USPAT  | 19990622  | 25    | US 5  |
| 18 | US 6019788 A      |           | USPAT  | 20000201  | 31    | US 6  |
| 19 | US 6042605 A      |           | USPAT  | 20000328  | 32    | US 6  |
| 20 | US 6059943 A      |           | USPAT  | 20000509  | 15    | US 6  |
| 21 | US 6199979 B1     |           | USPAT  | 20010313  | 14    | US 6  |
| 22 | US 6254978 B1     |           | USPAT  | 20010703  | 12    | US 6  |
| 23 | US RE37307 E      |           | USPAT  | 20010807  | 18    | US R  |
| 24 | US 6287717 B1     |           | USPAT  | 20010911  | 32    | US 6  |
| 25 | US 6300000 B1     |           | USPAT  | 20011009  | 82    | US 6  |
| 26 | US 20010033960 A1 |           | US-PGP | 20011025  | 83    | US 2  |
| 27 | US 20010044413 A1 |           | US-PGP | 20011122  |       |       |
| 28 | US 20010049550 A1 |           | US-PGP | 20011206  |       |       |
| 29 | US 20020002397 A1 |           | US-PGP | 20020103  |       |       |
| 30 | US 20020011684 A1 |           | US-PGP | 20020131  |       |       |
| 31 | US 20020022588 A1 |           | US-PGP | 20020221  |       |       |
| 32 | US 20020022123 A1 |           | US-PGP | 20020221  |       |       |
| 33 | US 20020035394 A1 |           | US-PGP | 20020321  |       |       |
| 34 | US 6361637 B1     |           | USPAT  | 20020326  |       |       |
| 35 | US 20020055697 A1 |           | US-PGP | 20020509  |       |       |
| 36 | US RE37701 E      |           | USPAT  | 20020514  |       |       |
| 37 | US 6395383 B1     |           | USPAT  | 20020528  |       |       |
| 38 | US 6416776 B1     |           | USPAT  | 20020709  |       |       |
| 39 | US 20020095218 A1 |           | US-PGP | 20020718  |       |       |
| 40 | US 20020142459 A1 |           | US-PGP | 20021003  |       |       |
| 41 | US 20020142458 A1 |           | US-PGP | 20021003  |       |       |
| 42 | US 20020141979 A1 |           | US-PGP | 20021003  |       |       |
| 43 | US 20020155295 A1 |           | US-PGP | 20021024  |       |       |

US-PAT-NO: 4902308

DOCUMENT-IDENTIFIER: US 4902308 A

TITLE: Composite membrane

----- KWIC -----

## Detailed Description Text - DETX (5):

Specifically, an expanded PTFE membrane whose microstructure is comprised of nodes interconnected by fibrils (FIGS. 1 and 2) is used as the support for the active metal ion exchange polymer coating. The ~~expanded PTFE~~ membrane is impregnated with a perfluoro-cation exchange polymer by fully wetting the structure with a dilute solution of this polymer, for example, sulfonic acid or carboxylic acid polymer, in alcohol or other suitable solvent. With the membrane restrained to prevent dimensional changes, the solvent is evaporated in an oven at 80.degree. C. to 120.degree. C. leaving a porous, chemically stable ion to exchange substrate with very high active surface area (FIGS. 3 and 4).

## Detailed Description Text - DETX (10):

An expanded PTFE membrane substrate having the following specific physical characteristics was employed: air flow was between 11.6 and 13.0 seconds as measured by Gurley densometer ASTM D726-58; thickness was between 0.0040 and 0.0045 inches; apparent density was between 0.20 and 0.25 g/cc; and methanol bubble point measured according to ASTM F316-80 was between 11.1 and 12.0 psi. A small sample of this expanded PTFE membrane was restrained on a frame. Approximately 10 ml of a 2.0% solution of 920 equivalent weight perfluorosulfonic acid polymer in ethyl alcohol (as disclosed in DuPont U.K. No. 1,286,859) was added to the expanded PTFE substrate to fully wet the membrane. Excess polymer solution was decanted and the wet membrane was placed in 100.degree. C. to 105.degree. C. oven for 5 minutes until fully dry. This perfluorosulfonic acid polymer/expanded PTFE matrix had 12.5% perfluorosulfonic acid polymer by weight, air flow ranged from 9 to 14 seconds measured according to ASTM D726-58, thickness was between 0.0022 and 0.0024 inches, and the sulfonic acid loading was 0.32 microequivalents per square centimeter.

## Detailed Description Text - DETX (11):

A 2.5 inch square section of perfluorosulfonic acid polymer/expanded PTFE membrane was placed in a polypropylene frame and wet with a solution of 15% isopropyl alcohol in deionized water. Excess alcohol solution was decanted and approximately 10 ml of a 1.0M solution of silver nitrate was added. The membrane was allowed to silver exchange at room temperature overnight. The silver ion exchanged membrane was then rinsed with deionized water and dried at room temperature under vacuum. The dried membrane was cut to give two 1.times.2 inch samples which were placed into gas sensors.

## Detailed Description Text - DETX (14):

The control had between 2.5 and 6.0 microequivalents/cm.sup.2 theoretical active sites whereas the ~~expanded PTFE~~ perfluorosulfonic acid polymer/silver ion membrane from the Example had only 0.32 microequivalents/cm.sup.2 theoretical active sites. In spite of this, the membrane of the Example showed between 31% and 110% increase in lifetime, with less than one-eighth of the theoretical equivalents of the control.